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PATENT

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Attorney Docket No. 8836-203 (IE12204-US)

PATENT & TRADEMARK OFFICE IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Sang-Yong Kim Examiner: Toniae M. Thomas

Serial No: 10/728,517 Group Art Unit: 2822

Filed: December 5, 2003

For: CLEANING SOLUTION AND METHOD FOR SELECTIVELY  
REMOVING LAYERS IN A SILICIDATION PROCESS

Mail Stop 16  
Commissioner for Patents  
PO Box 1450  
Alexandria VA 22313-1450

204-28

**REQUEST FOR REFUND**

**I. REFUND REQUEST**

This is a request for a refund with respect to the charge to Deposit Account No. 50-0679 for the above-identified application.

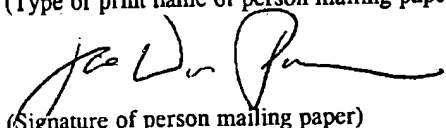
**CERTIFICATION UNDER 37 C.F.R. §1.8(a)**

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Mail Stop 16, Commissioner of Patents, PO Box 1450, Alexandria VA 22313-1450 on October 30, 2006.

Dated: October 30, 2006

Jaewoo Park

(Type or print name of person mailing paper)

  
(Signature of person mailing paper)

II. FEES CHARGED FOR WHICH REFUND REQUESTED

AMOUNT OF REFUND  
REQUESTED

|  |                  |
|--|------------------|
| <input type="checkbox"/> filing fee  | \$               |
| <input type="checkbox"/> surcharge for filing the basic filing fee<br>on a date later than the filing date of the<br>application (37 C.F.R. §1.16(e))    |                  |
| <input type="checkbox"/> and/or  |                  |
| <input type="checkbox"/> surcharge for filing the oath or declaration<br>on a date later than the filing date of the<br>application (37 C.F.R. §1.16(e)) |                  |
| <input type="checkbox"/> extension of term   |                  |
| <input type="checkbox"/> first month   |                  |
| <input type="checkbox"/> second month  |                  |
| <input type="checkbox"/> third month   |                  |
| <input type="checkbox"/> fourth month  |                  |
| <input type="checkbox"/> excess claims   | \$               |
| <input type="checkbox"/> issue fee   | \$               |
| <input type="checkbox"/> petition fee  |                  |
| <input type="checkbox"/> patent maintenance fee  |                  |
| <input type="checkbox"/> first maintenance fee   |                  |
| <input type="checkbox"/> second maintenance fee  |                  |
| <input type="checkbox"/> third maintenance fee   |                  |
| <input type="checkbox"/> patent maintenance fee surcharge  |                  |
| <input checked="" type="checkbox"/> other: <u>37 C.F.R. 1.17(p) (fee for submission of<br/>Information Disclosure Statement)</u>                         | \$ <u>180.00</u> |

**TOTAL REFUND REQUESTED** \$ 180.00

### III. EXPLANATION OF WHY CONTESTED CHARGE IS IN ERROR

The above charges were charged to deposit account no. 50-0679 without authorization from the applicant. Applicant submitted a Supplemental Information Disclosure Statement on August 15, 2006 in response to a First Office Action from the German Patent Office dated July 7, 2006 (a copy is enclosed). Applicant had until October 7, 2006 for which to reply. Therefore, Applicants' submission of the Supplemental Information Disclosure Statement on August 15, 2006 was timely, and the required fee by 37 C.F.R. 1.17(p) was improperly charged.

Therefore, Applicant believes that a charge of \$180.00 was mistakenly charged. Applicant respectfully request that a refund for said amount be granted.

### IV. MANNER OF REFUND

Please make refund by

- ☒ crediting Deposit Account No. 50-0679  
☐ refunding payment.

Respectfully requested,

F. CHAU & ASSOCIATES, LLC



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**TRANSLATION of an Office Action as issued  
by the German Patent and Trademark Office**

Date of the Office Action : July 07, 2006  
Date Received: July 25, 2006  
Official File No: 103 56 654.6-33  
Attorney's File: 16/SS00L62/DE  
Applicant: Samsung Electronics Co., Ltd.  
**Date Response is Due: November 25, 2006**

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Request for Examination effectively filed December 4, 2003

Please find below a report on the further examination of the above-mentioned application. A time limit for response of

**four months**

is herewith granted, beginning with the date of receipt.

**Two** copies each of all documents enclosed to the response (e.g. patent claims, description, parts of the description, drawings) must be filed on separate sheets. The response itself needs only to be filed singly.

If the specification, claims or drawings are amended in the course of the proceedings, applicant must, if the amendments are not proposed by the German Patent and Trademark Office, state in detail where the features of the invention described in the new documents have been disclosed in the original documents.

**Information on the Option of Dividing Out a Utility Model**

Applicants for a patent application filed later than January 1, 1987 and valid for the Federal Republic of Germany may file a utility model application pertaining to the same subject matter and claiming the date of application of the earlier patent application. This division (Sec. 5 Utility Model Act) is possible up to the expiry of the two months following the end of the month in which the patent application was terminated by a legally valid rejection, voluntary withdrawal, having been deemed to be withdrawn, an opposition procedure being concluded or -- in case of grant of a patent -- the time limit for appeal of the decision of grant having elapsed without effect. Detailed information about requirements for a utility model application, including division, are contained in the Information Sheet for Utility Model Applications (G6181) which can be obtained free of charge at the Patent Office and at public patent libraries.



In this Office Action the following references are cited for the first time (the consecutive numbering will be retained throughout the procedure):

(1) EP 1 123 956 A1

The Examination Procedure is based on the original documents including 38 claims.

1. The application is lacking unity.  
Claims 1 to 6 describe a method of selectively removing metal layers in a process for fabricating a semiconductor device. Claims 7 to 10 describe a method of selective removing a photoresist layer and organic materials in fabricating process of semiconductor devices. Claims 11 to 24 and 25 to 34 describe a method of selectively removing a metal layer in a process for forming a silicide layer, with features for forming layers being provided which are not imperatively necessary for the method of selectively removing a metal layer. Claims 35 to 38 describe a cleaning solution.  
Applicant is requested to create unity of the application.
2. Since the application refers to different inventions, and it is not clear what unitary inventive idea is forming the basis of the invention, research is possible only on a limited basis.  
Applicant is referred to the option of filing a divisional application.
3. Furthermore, it may be noted that from Document (1) (cf., in particular, section [0001] "chemical mechanical polishing of metal layers during production steps for semiconductor devices", [0006] "chemical etching", [0046] "sulfuric acid", and [0048] "oxidizing agents ... compounds such as potassium iodate"), a method of selectively removing metal layers in a process for fabricating a semiconductor device, comprising: removing the metal layers with a cleaning solution, the cleaning solution comprising an acid solution and an oxidation agent containing iodine, is known. The features of claim 1 relate to a standard process, which is primarily used in chemical mechanical polishing so as to selectively remove metal by etching. The composition of the etching solution in the method is not different from standard etching solutions being added to polishing pastes.  
The subject-matter of claim 1 is thus not novel and not patentable.
4. Further, it should be noted that from Document (1) (cf., in particular, page 3, lines 10 to 12 "titanium"), a method is known, wherein the metal layer comprises at least a titanium layer.  
Thus, the subject-matter of claim 2 is also not novel and thus not patentable.
5. Also, it should be noted that from Document (1) (cf., in particular, page 6, section [0035], "water") a method is known, wherein the cleaning solution includes water.  
The subject-matter of claim 3 is also not novel and thus not patentable.
6. Furthermore, it should be noted that from Document (1) (cf., in particular, page 6, sections [0046] and [0048], "sulfuric acid" and "potassium iodate", i.e.  $\text{KIO}_3$ ), a method is known wherein the acid solution includes sulfuric acid and the oxidation agent contains  $\text{KIO}_3$ .  
The subject-matter of claim 4 is not novel and not patentable.



7. It should be noted that the features of claim 5 and 6 are within the realms of standard practice for a skilled person, or are known from Document (1). Thus, e. g., using an oxidation agent containing iodine in an amount of about 10 wt % and less in the etching solution is known from Document (1) (cf., in particular, page 6, section [0049]) (claim 5), and a titanium layer comprising titanium (claim 6) represents an inevitable necessity, as otherwise the layer would not be a titanium layer. The subject-matter of claims 5 and 6 is not patentable.

With the documents presently on file, grant of a patent cannot be envisaged.

Examiner for class H01L